

Advisory Circular

AC92-2

Carriage of Dangerous Goods

Revision 2
xx xxxx 2022

General

Civil Aviation Authority advisory circulars (ACs) contain information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rule.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate AC.

Purpose

This AC describes an acceptable means of compliance with the dangerous goods (DG) carriage requirements prescribed under Civil Aviation Rules (CAR), Part 92 *Carriage of Dangerous Goods*, particularly for smaller operators and private pilots.

Related Rules

This AC relates specifically to CAR Part 92. In addition, it also relates to CAR Part 133 *Helicopter External Load Operations*.

Cancellation notice

This AC cancels AC92-2 Revision 1 dated 27 April 2007. Revision 2 is a substantive update with guidance on:

- 92.11(a) Carriage of DG by Police
- 92.11(b) Carriage of Class 1 DG
- 92.11(c) Carriage of DG for recreational use of passengers
- Carriage of DG for medical aid in flight
- 92.13 Carriage of DG by passengers and crew
- Carriage of DG by helicopters operating in remote areas
- Carriage of DG by underslung load
- List of commonly carried items of DG
- Segregation requirements
- Aircraft emergency response drills
- Carriage of DG in general

Version history

Outlined in the table below:

AC Revision No.	Effective Date	Summary of Changes
AC92-02	07 Sept 1995	Initial Issue
AC92-2 Rev 1	27 April 2007	Reformatted and renumbered the AC.
AC92-2 Rev 2	Xx Xxxx 2022	Complete rewrite of AC to include guidance on: <ul style="list-style-type: none">• 92.11(a) Carriage of DG by Police• 92.11(b) Carriage of Class 1 DG• 92.11(c) Carriage of DG for recreational use of passengers• Carriage of DG for medical aid in flight• 92.13 Carriage of DG by passengers and crew• Carriage of DG by helicopters operating in remote areas• Carriage of DG by underslung load• List of commonly carried items of DG• Segregation requirements• Aircraft emergency response drills• Carriage of DG in general

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1. Introduction

Part 92 requires that DG carriage by air be conducted in accordance with the International Civil Aviation Organisation Doc 9284 Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions) and provides three exemptions for specific circumstances. The intent of this AC is to provide guidance on those three exemptions, and in addition:

- a) To provide guidance on the carriage of DG for medical aid in flight;
- b) To provide guidance on the carriage of DG by passengers and crew;
- c) To detail procedures applicable to carriage of DG in remote areas by helicopter;
- d) To provide guidance on the carriage of DG by underslung load;
- e) To provide an easy reference for commonly carried items of DG;
- f) To provide an easy reference table for segregation of DG;
- g) To provide an easy reference to aircraft emergency response drills;
- h) To provide a brief summary of the key information required for carrying DG.

This guidance is aimed at small operators and private pilots who carry DG infrequently, or only carry a small number of DG items. An operator who is a regular carrier of DG and who accepts DG of all types will need to have access to and to understand the ICAO Technical Instructions. An operator's DG manual should specify the level of DG carriage. For example, is the operator a 'will-carry' or 'will-not-carry' operator, and do they accept the full spectrum of DG or only a limited number of items?

The requirements for the carriage of DG are applicable to all operators, irrespective of whether the operation is being conducted for hire or reward, or by a certificated operator, or a private pilot.

Some items of DG are forbidden for transport by air and nothing in this AC is intended to allow these items to be carried.

The International Air Transport Association (IATA) produce the Dangerous Goods Regulations (DGR), based on the ICAO Technical Instructions. An operator may elect to use the IATA DGR as their primary reference for the carriage of DG, and it is accepted that compliance with the IATA DGR meets all of the requirements of the ICAO Technical Instructions.

Training for the carriage of DG is detailed in AC 92-1. It is a requirement for all personnel involved in the carriage of DG to be trained to the extent appropriate to their role and the DG that they interact with, in the environment that they operate in. Generic DG awareness training does not meet this requirement, so it is a responsibility of all operators to ensure that their personnel are trained appropriately to their role and to a level commensurate with their duties. An operator must ensure the competency of their staff, with a competency demonstration being conducted either as part of, or immediately following, DG initial or recurrent training.

2. Definitions, Abbreviations, and Symbols

Definitions	
Approval	An authorisation granted by CAA to carry specific DG allowed for in the ICAO Technical Instructions.
Baggage	Personal property of a passenger or crew member carried on an aircraft with that person.
Cargo	Any property carried on an aircraft other than mail and baggage.
Certified Handler	A person who holds a compliance certificate as a certified handler issued under the Health and Safety at Work (Hazardous Substances) Regulations 2017
Competency-based Training	Training and assessment characterised by the defining and setting of performance standards, development of training to meet those standards, and training and assessment against those standards.
Dangerous Goods (DG)	Articles or substances which are capable of posing a hazard to health, safety, property, or the environment and which are shown in the list of DG in the ICAO Technical Instructions, or which are classified according to the ICAO Technical Instructions.
Dangerous Goods Declaration (DGD)	The IATA Dangerous Goods Transport Document.
Exception	A provision contained within the ICAO Technical Instructions which excludes a specific item of DG from the requirements normally applicable to that item.
Exemption	An authorisation, other than an approval, granted by CAA providing relief from the requirements of the ICAO Technical Instructions.
Handling agent	An agency which performs on behalf of an operator some or all of the operator's functions including receiving, loading, unloading, transferring, or other processing of passengers or cargo.
IATA DGR	The International Air Transport Association's Dangerous Goods Regulations
ICAO Technical Instructions	The International Civil Aviation Organisation's Document 9284: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
No-carry	IATA definition of an operator who does not carry DG as cargo (synonymous with a will-not-carry operator).
Notice to Operating Crew (NOTOC)	The document that advises the pilot in command of dangerous goods loaded in the aircraft, including emergency response codes.
Will-carry	An operator who carries DG as cargo.
Will-not-carry	An operator who elects not to carry DG as cargo. A will-not-carry operator may still carry DG under other provisions such as DG carried by passengers and crew.

Abbreviations	
AC	Advisory circular
a/c	Aircraft
CAA	Civil Aviation Authority
CAO	Cargo Aircraft Only
CAR	Civil Aviation Rules
DG	Dangerous Goods
DGD	Dangerous Goods Declaration
DGR	Dangerous Goods Regulations
Doc	Document
DOC	Department of Conservation
EQ	Equivalent quantity
ERG	Emergency response guidance
g	Gram
G	Gross mass
IATA	International Airline Transport Association
ICAO	International Civil Aviation Organisation
kg	Kilogram
L	Litre
Max	Maximum
mg	Milligram
mL	Millilitre
N/A	Not applicable
n.o.s	Not otherwise specified
NOTOC	Notice to Captain
PED	Personal Electronic Device
PI	Packing Instruction
Pkg	Package
PSN	Proper Shipping Name
Qty	Quantity
SMS	Safety Management System
S.P.	Special Provision
TI	Technical Instructions
UN	United Nations
v	Volt
Wh	Watt-hour

3. Carriage of Dangerous Goods (DG) by a Member of the Police

Rule 92.11(a)

This allows a member of the police to carry DG in an aircraft in the course of that person's duties without complying with Part 92, if that aircraft is being used solely for police purposes. A certificated operator who intends to make use of this provision should include, in their operations manual or exposition, appropriate procedures to address the potential safety implications of carrying police with DG. It is expected that a certificated operator will use their Safety Management System (SMS) to conduct a risk analysis, and create appropriate operating procedures based on that risk analysis. A non-certificated operator who uses this provision should also conduct a safety risk assessment and apply appropriate safety measures.

The following list is indicative of DG that police personnel may wish to carry. This list is not exclusive: other DG may be presented for carriage by air. It may be necessary to do a more detailed risk analysis, or consult the ICAO Technical Instructions for unexpected cases.

Table 3.1 Common items of DG carried by Police Personnel

Common Name	UN #	Class or division	Proper Shipping Name	Notes
Alcohol hand sanitiser	1170	3	Ethanol, or Ethanol solution	
Alcohol hand sanitiser	1219	3	Isopropanol	
Alcohol wipes	3175	4.1	Solids containing flammable liquids	75% alcohol disinfectant wipes
Ammunition	0012	1.4S	Cartridges, small arms	Ammunition consisting of a centre fire or rim fire primer and containing both a propelling charge and solid projectile, calibre less than 19.1mm. Includes shotgun cartridges of any calibre.
Batteries and Lithium batteries	2800 2794 2795 3171 3171 3480 3481 3481 3090 3091 3091	8 8 8 9 9 9 9 9 9 9 9	Batteries, wet, non-spillable Batteries, wet, filled with acid Batteries, wet, filled with alkali Battery powered equipment Battery powered vehicle Lithium ion batteries Lithium ion batteries contained within equipment Lithium ion batteries packed with equipment Lithium metal batteries Lithium metal batteries contained within equipment Lithium metal batteries packed with equipment	Contained within: Radios; GPS receivers; Computers; Photography equipment; Drones; Power tools; EPIRBs; Sonar; Radio repeaters. Includes spare batteries.
Cylinders	1956	2.2	Compressed gas, n.o.s	Diving cylinders
Detonators	0360	1.1B	Detonator assemblies, non-electric, for blasting	
Distraction device	0410	1.4D	Fuses, detonating	
Explosive charges	0065	1.4D	Cord, detonating	

Explosive charges	0084	1.1D	Explosive, blasting, type D	
Explosive charges	0288	1.1D	Charges, shaped, flexible, linear	
First aid kit	3316	9	First aid kit	May contain one or more compatible items of DG used for medical purposes
Fuel	1223	3	Kerosene	Fuel for camp stoves, generators, powered tools, etc
Fuel	1299	3	Turpentine	Fuel for camp stoves, generators, powered tools, etc
Fuel	1300	3	Turpentine substitute	White spirits: fuel for camp stoves
Fuel	1203	3	Gasoline	Fuel for camp stoves, generators, powered tools, etc
Fuel	1203	3	Petrol	Fuel for camp stoves, generators, powered tools, etc
Fuel	1203	3	Motor spirit	Fuel for camp stoves, generators, powered tools, etc
Gas cannisters	1954	2.1	Compressed gas, flammable, n.o.s	Gas cannisters for camp stoves
Gas cannisters	2037	2.1	Receptacles, small, containing gas	Flammable gas, without a release device, non-refillable
Generator	3528	3	Machinery, internal combustion, flammable liquid powered	
Grenades	0301	1.4G (6.1,8)	Ammunition, tear producing	
Oxygen	1072	2.2 (5.1)	Oxygen, compressed	Medical oxygen Oxygen for ultra-thermic cutting lance
Pepper spray	1050		Hydrogen chloride, anhydrous	
Portable Electronic Devices (PEDs)	See batteries above			
Smoke grenade	0303	1.4G	Ammunition, smoke	
Stun grenade	0431	1.4G	Articles, pyrotechnic	
Tasers	1066	2.2	Nitrogen, compressed	

4. Carriage of Class 1 DG

Rule 92.11(b)

Rule 92.11(b) allows for the offer and acceptance of Class 1 DG without complying with all Part 92 requirements and prescribes several conditions for that carriage to happen. The intention of this provision is to allow for the dropping of explosives from helicopters for avalanche control. The minimum requirements of the rule are as follows:

Rule 92.11(b)(1) *Carriage is approved by a certified handler¹.*

A certified handler must hold a current compliance certificate appropriate to the explosive being used, issued in accordance with the Health and Safety at Work (Hazardous Substances) Regulations 2017. The compliance certificate should be viewed by the operator and a copy kept on file.

Rule 92.11(b)(2) *The DG are carried (i) under the supervision of a certified handler, or (ii) in accordance with the instructions given by a certified handler and that certified handler is readily contactable to provide assistance at all times whilst the DG is being carried.*

It is expected that the certified handler would be carried in the aircraft with the explosives and always remain in charge of their carriage and use. If option (ii) is used, it should be possible to communicate with the certified handler at all times in flight and on the ground and if operations are from a remote site adequate facility for this communication must be available.

Rule 92.11(b)(3) *Safety and emergency procedures are established for the carriage of the goods.*

Written procedures for the safety of the operation and actions in the event of an emergency should be included in the operator's exposition or standard operating procedures. These procedures should be reviewed prior to each individual flight or series of flights as part of the pre-flight planning process, and a briefing held with all applicable personnel prior to the operation commencing.

Rule 92.11(b)(4) *The goods are (i) in a proper condition for carriage by air and (ii) stowed and secured for safe carriage.*

The goods should be carried in their original manufacturer's packaging, or, if it is intended for the goods to be dropped from the aircraft, be packed safely for the duration of any transit flights. They must be stowed and secured to prevent movement occurring during normal flight manoeuvres, during emergency manoeuvres, and turbulence.

Rule 92.11(b)(5) *The aircraft does not carry any passenger other than a passenger who is essential for the purpose of the flight.*

It is expected that the only passenger being carried would be the certified handler.

Rule 92.11(b)(6) *The flight is conducted clear of any congested area of a city, town, or settlement.*

Sufficient clearance from congested areas must be planned, to ensure that

- an emergency landing can be conducted at any time during flight without hazarding persons or property on the surface, and
- if an inadvertent release of the explosives occurs, they fall into a safe area.

¹ Reference in this section to a Certified Handler has the same meaning and intent as the Approved Handler referred to in Part 92. Introduction of the Health and Safety at Work (Hazardous Substances) Regulations 2017 replaced the term Approved with Certified.

In all cases, a certificated operator who intends to make use of the applicable provisions should include in their operations manual or exposition appropriate procedures to address the potential safety implications. It is expected that a certificated operator will use their SMS to conduct a risk analysis, and create appropriate operating procedures based on that risk analysis. A non-certificated operator who uses these provisions should also conduct a safety risk assessment and apply appropriate safety measures.

5. Carriage of DG for the Recreational Use of a Passenger

Rule 92.11(c)

Rule 92.11(c) allows for the offer and acceptance of DG for carriage by air without complying with Part 92 if they are for the recreational use of a passenger. This rule prescribes several conditions for that carriage to occur. The intention of this provision is to allow for the carriage of small quantities of common items used by people undertaking recreational activities in the outdoors. This provision cannot be used to carry DG for persons who are travelling for work purposes, such as Department of Conservation (DOC) staff or contractors travelling to remote worksites by helicopter.

It is recommended that the requirements of the ICAO Technical Instructions be applied with regard to identification, packaging, packing, quantity limits, stowing, and segregation of DG carried under this provision.

The minimum requirements to meet the conditions of this rule are:

Rule 92.11(c)(1) *The DG are carried in an unpressurised aircraft that (i) has a MCTOW of 5700kg or less, and (ii) is on a domestic VFR flight.*

It is not acceptable to use this rule for larger aircraft or during IFR operations.

Rule 92.11(c)(2) *The DG are not listed in the Dangerous Goods List in the Technical Instructions as being forbidden for carriage by air in an aircraft that carries passengers.*

An operator who uses this rule should include in their DG manual a list of DG that they accept for carriage. A list of common recreational items is provided below, with summarised information taken from the ICAO Technical Instructions and the IATA DGR. It may be used for reference. If items that are not on this list are presented for carriage, an operator needs to be sure that the item is not forbidden by the ICAO Technical Instructions.

Rule 92.11(c)(3) *Safety and emergency procedures for the carriage of the dangerous goods are established.*

Written procedures for the safety of the operation and actions in the event of an emergency should be included in the operator's DG manual or standard operating procedures. These procedures should be reviewed prior to each individual flight, or series of flights, as part of the pre-flight planning and a briefing held with all applicable personnel, including the passengers, prior to the operation commencing.

Rule 92.11(c)(4) *Each item of dangerous goods is identified.*

Passengers must be briefed on the carriage of DG and should be required to present any and all DG to the operator or pilot for inspection prior to flight.

Rule 92.11(c)(5) *The pilot-in-command is informed of the hazardous nature of the goods.*

The operator and the pilot must be fully aware of the dangers presented by the DG and how the DG can be carried safely. While this rule allows for carriage of DG without applying the ICAO Technical Instructions, this document and ICAO Doc 9481, *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods*, provide the applicable technical and safety information. If an item of DG is presented for carriage that the operator or pilot is not familiar with, they should refer to a person who is familiar with the ICAO Technical Instructions for guidance.

Rule 92.11(c)(6)(i) *The dangerous goods are in a proper condition for carriage by air.*

Individual items, packages, and containers must be free from damage and there must be no visible leakage. Metal containers must not show any signs of corrosion. The testing dates of any

compressed gas cylinders or diving tanks must be valid, and valves checked for leakage and security.

Rule 92.11(c)(6)(ii) *The dangerous goods are segregated if they are likely to react dangerously together.*

The ICAO Technical Instructions contain advice on what items of DG are required to be segregated from other items of DG. The items listed in the table below are not subject to segregation requirements. If a passenger wishes to carry other items of DG that fall into other classes or divisions than the ones listed, reference to the ICAO Technical Instructions will be required to determine any segregation requirements. For ease of reference a segregation table is attached as Appendix B.

Rule 92.11(c)(6)(iii) *The dangerous goods are stowed, secured, and if necessary packed, to prevent leakage or damage in flight.*

Whilst the ICAO Technical Instructions contain packing instructions for each item, this rule allows for some flexibility in the type of packing material. However, DG should be carried in containers or receptacles that are specifically designed for that purpose. For example, petrol must be carried in a jerry can designed for petrol, not in glass or plastic bottles. Another example is ammunition which should be carried in undamaged original packaging, or securely carried in an ammunition belt or magazine so that it cannot move or fall out. DG should be stowed and secured to prevent movement and prevent any damage occurring to the package or container during flight.

Rule 92.11(c)(7) *The only passengers carried aboard the aircraft are passengers who are associated with the dangerous goods.*

This requirement means that any passengers onboard the aircraft must be part of the same group of persons, such as group of hunters from one hunting party. For example, it is not permissible to carry some hunters with DG, at the same time as carrying other passengers for a scenic flight.

In all, cases, a certificated operator who intends to make use of the applicable provisions should include in their operations manual or exposition appropriate procedures to address the potential safety implications. It is expected that a certificated operator will use their SMS to conduct a risk analysis, and create appropriate operating procedures based on that risk analysis. A non-certificated operator who uses these provisions should also conduct a safety risk assessment and apply appropriate safety measures.

In order to comply with these provisions, it is necessary to be familiar with the DG being carried and the requirements of the ICAO Technical Instructions. For this reason, a list of common DG items is provided with the allowable quantities and any specific requirements taken from the ICAO Technical Instructions. If an item of DG, that is not included in the list, is presented for carriage, the operator should refer to the ICAO Technical Instructions as a starting point to determine correct and safe provisions for the carriage of that item.

Table 5.1: List of common DG carried for recreational purposes by passengers

Common Name	Technical Name	UN Number	Class	Hazard Label	Max Quantity per package	Notes
Ammunition	Cartridges, Small Arms	0012	1.4(s)	Explosive 1.4	25 kg	Cartridge case fitted with centre-fire or rim-fire primer, and a propelling charge and projectile. Includes shotgun cartridges. Maximum quantity per passenger 5kg.
Camping gas cannisters	Receptacles, small, containing gas (flammable, without a release device, non-refillable)	2037	2.1	Flammable Gas	1 kg	Small camping gas cannisters. 500 g maximum per canister, 1 kg maximum per package. Cannister must be new (unpunctured) or of a style that self-seals when the burner is removed from the cannister. The burner must be removed from the cannister prior to carriage by air. Must be butane, or a butane mixture having similar properties. Pure propane or isobutane cannisters are not permitted.
Diesel	Diesel fuel	1202	3	Flammable Liquid	60 L	
Fire lighters	Firelighters, solid	2623	4.1	Flammable solid	25 kg	
Fly Spray	Aerosols, flammable	1950	2.1	Flammable Gas	75 kg	Each non-refillable metal container must not exceed 1 L capacity. Each non-refillable plastic aerosol must not exceed 120 mL capacity. Aerosols containing engine starting fluid are forbidden. The

						release valve must be protected from inadvertent release.
Kerosene	Kerosene	1223	3	Flammable liquid	60 L	
Matches	Matches, safety	1944	4.1	Flammable solid	25 kg	Strike anywhere matches are not permitted. Must be tightly and securely packed to prevent movement within the package.
Petrol	Petrol	1203	3	Flammable liquid	5 L	
White Spirits	Turpentine Substitute	1300	3	Flammable Liquid	5 L	

6. Carriage of DG for Medical Aid In-Flight

Rule 92.1

Rule 92.1(b)(1) states that Part 92 *does not apply to articles or substances that are specifically excluded under Part One in the Technical Instructions.*

The ICAO Technical Instructions paragraph 1.1.5.1 states:

...these instructions do not apply to dangerous goods carried by an aircraft where the dangerous goods are (a) to provide, during flight, medical aid to a patient or to preserve tissues or organs intended for use in transplantation when these dangerous goods:

- 1) Have been placed on board with the approval of the operator; or*
- 2) Form part of the permanent equipment of the aircraft when it has been adapted for specialised use;*

Providing that:

- 1) Gas cylinders have been manufactured specifically for the purpose of containing and transporting that particular gas;*
- 2) Equipment containing wet-cell batteries is kept and, when necessary, secured in an upright position to prevent spillage of the electrolyte;*
- 3) Lithium metal or lithium ion cells or batteries meet the provision of 2;9.3² and spare lithium batteries are individually protected so as to prevent short circuits when not in use.*

A certificated operator who intends to make use of this provision should include in their operations manual or exposition appropriate procedures to address the potential safety implications of carrying DG for medical use in flight without complying with the ICAO Technical Instructions. It is expected that a certificated operator will use their SMS to conduct a risk analysis, and create appropriate operating procedures based on that risk analysis.

A non-certificated operator who uses this provision should also conduct a safety risk assessment and apply appropriate safety measures.

The ICAO Technical Instructions place other requirements on the use of this exception:

- Provision must be made to stow and secure DG during take-off and landing and at all other times when deemed necessary by the pilot-in-command;*
- The DG must be under the control of trained personnel during the time when they are in use on the aircraft;*
- DG transported under this exception may be carried on a flight made by the same aircraft before or after a flight for the purposes identified above, when it is impracticable to load or unload the DG immediately before or after the flight, subject to the following conditions:*

² 2;9.3 lists the requirements for the carriage of lithium batteries.

- a) *The DG must be capable of withstanding the normal conditions of transport;*
 - b) *The DG must be appropriately identified (e.g. by marking or labelling);*
 - c) *The DG may only be carried with the approval of the operator;*
 - d) *The DG must be inspected for damage or leakage prior to loading;*
 - e) *Loading must be supervised by the operator;*
 - f) *The DG must be stowed and secured in the aircraft in a manner that will prevent any movement in flight which would change their orientation;*
 - g) *The pilot-in-command must be notified of the DG loaded on board the aircraft and their loading location. In the event of a crew-change, this information must be passed to the next crew;*
 - h) *All personnel must be trained commensurate with the functions for which they are responsible;*
 - i) *The provisions of 7;4.2³ and 7;4.4⁴ apply.*
- *DG transported under this exception may be carried on flights made by the same aircraft for other purposes (e.g. training or positioning flights before or after maintenance) subject to the conditions in a)-i) above.*

In order to assist operators, the following list is indicative of DG that medical personnel may wish to carry. This list is not exclusive: other DG may be presented for carriage by air. It may be necessary to do a more detailed risk analysis, or consult the ICAO Technical Instructions for unexpected cases.

Table 6.1 Common items of DG carried by Medical Personnel

Common Name	UN #	Class or division	Proper Shipping Name	Notes
Compressed air	1002	2.2	Air, compressed	Other gases may be carried
Alcohol hand sanitiser	1170	3	Ethanol, or Ethanol solution	
Alcohol hand sanitiser	1219	3	Isopropanol	
Alcohol wipes	3175	4.1	Solids containing flammable liquids	75% alcohol disinfectant wipes
Batteries and Lithium batteries	3171	9	Battery powered equipment	Contained within medical equipment such as: <ul style="list-style-type: none"> • Monitors • Ventilators • Suction devices • Syringe drivers • PEDs
	3480		Lithium ion batteries	
	3481	9	Lithium ion batteries contained within equipment	
	3481	9	Lithium ion batteries packed with equipment	
	3090	9	Lithium metal batteries	
	3091	9	Lithium metal batteries contained within equipment	
	3091	9	Lithium metal batteries packed with equipment	Includes spare batteries both lithium and non-lithium

³ 7;4.2 details the requirements for information provided to employees.

⁴ 7;4.2 details the reporting of DG accidents and incidents.

Cylinders	1956	2.2	Compressed gas, n.o.s	
First aid kit	3316	9	First aid kit	May contain one or more compatible items of DG used for medical purposes
Nitrous oxide	2201	2.2(5.1)	Nitrous oxide	
Oxygen	1072	2.2(5.1)	Oxygen, compressed	Medical oxygen
Portable electronic devices	See batteries above			

7. Carriage of DG by Passengers and Crew

Rule 92.13

Rule 92.13 requires that DG may not be carried on an aircraft in checked baggage, carry-on baggage, or on a person unless permitted by the ICAO Technical Instructions. Part 8 of the ICAO Technical Instructions and section 2 of the IATA DGR provide a detailed description of items that are permitted for carriage by passengers and crew, with notes on allowable quantities and packaging, etc. This section is applicable to all operators and pilots regardless of whether they are 'will-carry' or 'will-not-carry' operators or are flying for hire or reward or privately. For example, it includes the provision for passengers and crew to carry PEDs, such as mobile phones.


As part of the requirements of the ICAO Technical Instructions:


- a) The goods must be carried in carry-on baggage, checked baggage, or on the person;
- b) The goods must be permitted in the applicable table (ICAO Technical Instructions Part 8 Table 8-1, or IATA DGR Section 2.3 Table 2.3.A);
- c) The goods must be for personal use only;
- d) The other provisions of the ICAO Technical Instructions (such as documentation, marking, labelling, packing) do not apply to goods carried under these provisions except that reporting requirements for DG incidents are still applicable.


The intent of this section of the AC is to provide an easy reference guide to the common items carried by passengers and crew. This information is taken from the ICAO Technical Instructions and the IATA DGR, and if clarification or more information is required then reference to the latest version of those manuals is required. This list is not exhaustive: there are other items, not commonly carried, included in the list contained in the ICAO Technical Instructions but not in this AC.

All certificated operators are required to include training on this provision in their DG training programme. Non-certificated operators and private pilots are also required to undertake similar training. For guidance on best practice for running training and recurrent training, and other training obligations, refer to AC92-1, *Dangerous Goods Training*.

Table 7.1: Provisions for Dangerous Goods Carried by Passengers and Crew

Alcoholic Beverages			
	Packaging	Quantity	Notes
	In retail packaging	Maximum per receptacle 5 L Total quantity per person 5 L	More than 24% but less than 70% alcohol by volume
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	Yes	Yes	No


Ammunition			
	Packaging	Quantity	Notes
	Securely packaged. Allowances for more than one person must not be combined into one or more packages.	Not exceeding 5 kg gross weight per person.	Division 1.4S only. For that person's own use only. Excludes ammunition with explosive or incendiary projectiles.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	No	No

Avalanche rescue backpack			
	Packaging	Quantity	Notes
	Packed so that it cannot be inadvertently activated.	One per person.	Containing cartridges of division 2.2 compressed gas, may be fitted with trigger containing no more than 200 mg net of division 1.4S. Must be fitted with pressure relief valves.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	Yes	No


Batteries: spare/loose


Includes lithium batteries, non-spillable batteries, nickel-metal hydride batteries, and dry batteries for portable electronic devices.


Articles which have the primary purpose as a power source (power banks) are considered spare batteries.


	Packaging	Quantity	Notes
	Must be individually protected to prevent short circuits.	Maximum 20 spare batteries per person. The operator may approve the carriage of more than 20 batteries.	Lithium metal batteries must not exceed 2 g of lithium content. Lithium ion batteries must not exceed 100 Wh. Non-spillable wet batteries must be capable of withstanding vibration and pressure tests, maximum 2 per person, not exceeding 12 v and 100 Wh, battery terminals must be protected.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	No	Yes	No


Camping stoves and fuel containers that have contained flammable liquid fuel


	Packaging	Quantity	Notes
	Cap securely fastened. Wrapped in absorbent material and placed in a sealed polyethylene or equivalent bag.		Must be completely drained and action taken to nullify the danger.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	No	No


Dry Ice (solid carbon dioxide)			
	Packaging	Quantity	Notes
	Baggage must permit release of CO ₂ gas. Checked baggage must be marked 'dry-ice' or 'carbon-dioxide, solid'.	Maximum 2.5 kg per person, when used to pack perishables.	Net weight of dry ice marked on package, or an indication that there is less than 2.5 kg.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	Yes	No


E-cigarettes (Includes e-cigars, e-pipes, personal vaporisers, electronic nicotine delivery systems).			
	Packaging	Quantity	Notes
	Measures must be taken to prevent unintentional activation of the heating element while on board the aircraft.		Re-charging on board aircraft is not permitted.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	No	Yes	No

Gas cartridges, small non-flammable			
	Packaging	Quantity	Notes
	Personal safety device packed so that it cannot be inadvertently activated.	Maximum 2 small cartridges fitted to a self-inflating personal safety device such as a lifejacket. Not more than 2 devices per passenger and 2 spare cartridges per device. For other devices, max. 4 cartridges, capacity not exceeding 50 mL water (equivalent to a 28 g gas cartridge).	CO ₂ or other suitable gas in division 2.2 without subsidiary hazard. Must be for inflation purposes.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	Yes	No


Gas cylinders: non-flammable, non-toxic, worn for the operation of mechanical limbs			
	Packaging	Quantity	Notes
		As required by the limb.	Spare cylinders of a similar size are also allowed if required to ensure an adequate supply for the duration of the journey.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	Yes	Yes	No


Hair styling equipment containing a hydrocarbon gas cartridge			
	Packaging	Quantity	Notes
	Safety cover must be securely fitted over the heating element.	1 per passenger or crew member.	Must not be used on board the aircraft at any time. Spare cartridges are not permitted in checked or carry-on baggage.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	Yes	Yes	No


Internal combustion or fuel cell engines			
	Packaging	Quantity	Notes
	Flammable liquid powered internal combustion or fuel cell engines being carried separately or incorporated into a machine or other apparatus, without batteries or other DG, must comply with the conditions that: <ul style="list-style-type: none"> a) The engine is powered by a fuel that is not a DG; or b) The fuel tank has never contained any fuel, or the fuel has been flushed and the tank purged of vapours and adequate measures taken to nullify the hazard; and c) The passenger provides documentation that the flushing and purging procedure has been followed, and; d) The entire fuel system has no free liquid and all fuel lines are sealed or capped or securely connected. 		
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	Yes	No	No


Lithium batteries: Portable electronic devices (PED) containing lithium metal or lithium ion cells or batteries Includes medical devices such as portable oxygen concentrators, and consumer electronics such as cameras, mobile phones, laptops, and tablets.			
	Packaging	Quantity	Notes
	Devices in checked baggage must be completely switched off and must be protected from damage.	Maximum 15 PED per person. The operator may approve the carriage of more than 15 PED.	Lithium metal content must not exceed 2 g. Lithium ion batteries must not exceed 100 Wh each
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	Yes	Yes	No


Lithium batteries: spare/loose including power banks: see Batteries: spare/loose Lithium ion batteries with rating of less than 100 Wh and lithium ion batteries with less than 2 g of lithium metal content
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Lithium battery powered electronic devices Includes portable medical electronic devices, power tools, video cameras, laptops, etc.			
	Packaging	Quantity	Notes
	Devices in checked baggage must be completely switched off (not in hibernation or sleep mode). Must be protected from damage. Must be protected from inadvertent activation.	Maximum 15 PED per person.	Lithium ion batteries exceeding 100 Wh but not exceeding 160 Wh. For medical devices only, lithium metal batteries with lithium metal content exceeding 2 g but not exceeding 8 g. Batteries must meet UN testing criteria.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	Yes	No


Lithium batteries spare/loose			
	Packaging	Quantity	Notes
	Batteries must be individually protected to prevent short circuits.	Maximum 2 spare batteries.	Lithium ion batteries exceeding 100 Wh but not exceeding 160 Wh. For medical devices only, lithium metal batteries with lithium metal content exceeding 2 g but not exceeding 8 g. Batteries must meet UN testing criteria.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	No	Yes	No


Matches, safety, or small cigarette lighter			
	Packaging	Quantity	Notes
	One small packet, or one small lighter. Only if carried by the individual who intends to use the item. Lighter must not contain unabsorbed liquid fuel, other than liquified gas. Lighter fuel and lighter refills are not permitted. Strike anywhere matches, blue flame lighters, cigar lighters, are not permitted. Cigarette lighters should have two independent actions by the user to activate ignition. Cigarette lighters powered by lithium batteries without a safety cap or means of protection against inadvertent activation are not permitted.		
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	No	On one's person only	No


Mobility aids with non-spillable wet batteries, nickel metal hydride batteries, or dry batteries			
	Packaging	Quantity	Notes
	Mobility aid must be prepared to prevent inadvertent activation. Mobility aid secured and protected from damage. Any spare batteries, batteries that are removed must be carried in strong rigid packaging in cargo compartment.	May carry one spare wet non-spillable battery, or two spare nickel-metal hydride or dry batteries.	Non-spillable batteries must not contain any free or unabsorbed liquid. Batteries must be prepared to prevent short circuit and inadvertent activation. Non-spillable wet batteries must pass pressure and vibration tests.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	No	Yes


Mobility aids with spillable batteries, or lithium ion batteries			
	Packaging	Quantity	Notes
	Mobility aid must be prepared to prevent inadvertent activation. Mobility aid secured and protected from damage. Battery securely attached to wheelchair and electrical circuits isolated, or, removed if the wheelchair is unable to be carried upright. If battery removed, packaging must be marked 'BATTERY-WET with WHEELCHAIR' and with corrosive and orientation labels.	May carry one spare wet non-spillable battery, or two spare nickel-metal hydride or dry batteries.	Battery terminals prevented from short circuit. Battery fitted with non-spillable vent caps. Battery must be carried upright. If battery is removed it must be carried in leak-proof, impervious packaging, secured, protected from short circuit, and surrounded by compatible absorbent material able to contain the entire liquid contents.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	No	Yes

Mobility aids with lithium ion batteries			
	Packaging	Quantity	Notes
	Mobility aid must be prepared to prevent inadvertent activation. Mobility aid secured and protected from damage. Battery securely attached to wheelchair and electrical circuits isolated or removed.	Passenger may carry one spare battery not exceeding 300 Wh or two spare batteries not exceeding 160 Wh.	Battery must meet UN test criteria. Battery terminals prevented from short circuit. If battery is removed it must not exceed 300 Wh, or if two batteries are installed must not exceed 160 Wh each. Any removed batteries or spare batteries must be carried in the passenger cabin and protected from damage. If the battery is specifically designed to be removed, it must be removed and carried in the cabin.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	No	Yes

Non-radioactive medicinal or toiletry articles (including aerosols)			
Including hairsprays, perfumes, colognes, medicines containing alcohol, and non-flammable non-toxic aerosols with no subsidiary hazard, for sporting or home use.			
	Packaging	Quantity	Notes
	Release valves on aerosols must be protected by a cap or other suitable means.	Total net quantity must not exceed 2 kg or 2 L. Net quantity of each article must not exceed 0.5 kg or 0.5 L.	
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	Yes	Yes	Yes

Oxygen or air, gas cylinders for medical use			
	Packaging	Quantity	Notes
	Cylinders valves and regulators must be protected from damage and inadvertent release.	Cylinder must not exceed 5 Kg gross weight.	Liquid oxygen is forbidden for transport.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	Yes	Yes	Yes

Thermometer, medical or clinical			
	Packaging	Quantity	Notes
	Packed in its protective case.	One per person for personal use.	
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
No	Yes	No	No

Thermometer or barometer, mercury filled			
Carried by a representative of a government weather bureau or similar official agency			
	Packaging	Quantity	Notes
	Packed in strong outer packaging, with a sealed inner liner, or bag of strong leak-proof and puncture-resistant material impervious to mercury.	One per person.	Packaging must prevent escape of mercury regardless of position of package.
Approval of operator required	Permitted as checked baggage	Permitted as carry-on baggage	PIC informed of location
Yes	No	Yes	Yes

Items in the ICAO Technical Instructions or IATA DGR not included above

Baggage with installed lithium batteries
 Chemical agent monitoring equipment
 Disabling devices (such as mace, pepper spray)
 Electroshock weapons
 Fuel cells contained in portable electronic devices
 Fuel cell cartridges, spare
 Insulated packaging containing refrigerated liquid nitrogen
 Permeation devices
 Radio isotopic cardiac pacemakers
 Security type equipment (attaché cases, cash boxes, etc fitted with lithium batteries or pyrotechnics)
 Specimens, non-infectious, packed with small quantities of flammable liquid

8. Carriage of DG by Helicopters Operating in Remote Areas with very limited access to DG services

ICAO Technical Instructions and rules 92.53 to 92.173

The ICAO Technical Instructions allow CAA to prescribe specific procedures for the carriage of DG by helicopters. This provision recognises that for some helicopter operations the application of the full provisions of the ICAO Technical Instructions may not be appropriate or necessary, due to the operation involving unmanned sites, remote locations, mountainous areas, etc.

This section of this AC provides an acceptable means of compliance for helicopters operating within New Zealand or New Zealand territory, to carry DG, in circumstances and locations that make full compliance with the requirements of the ICAO Technical Instructions unduly difficult or impossible to achieve. It is not a blanket approval to ignore the ICAO Technical Instructions: it is an explanation of acceptable methods and processes that an operator may wish to use to provide relief from some of the requirements of the ICAO Technical Instructions. These methods or processes must be incorporated into an operator's DG Manual (part of the exposition), or, for a non-certificated operator, included in a written standard operating procedure.

The requirements of Part 92 cannot be changed; however, a helicopter operator may create and apply an applicable procedure that achieves a specific rule requirement but is a variation of the ICAO Technical Instructions, in accordance with the guidance below. Note that the following explanations do not cover all the requirements of Part 92 and that reference to Part 92, as well as this AC, will be required when creating procedures for the carriage of DG.

It is recognised that in remote areas it is not possible for clients or passengers to engage the services of a DG handling agent for packing and shipping DG, and that many will offer DG to an operator or pilot for carriage by air without being properly packed and shipped. In these circumstances, it is acceptable for an appropriately trained and qualified employee of the operator to act as the packer and shipper, as required. This is not, however, a blanket approval for helicopter operators to pack and ship DG (unless they are appropriately qualified and certified to do so), rather it is a provision that may be used in remote areas in circumstances as described above.

Attached as Appendix 1 is a list of items of DG that are commonly carried by helicopters in New Zealand, with the appropriate information for each item extracted from the ICAO Technical Instructions. This list is not a limitation on DG that can be carried, rather it is provided as a quick reference guide for use in situations where reference to the ICAO Technical Instructions or IATA DGR is not possible or practical.

Rule 92.51 Packaging requirements.

DG must be packaged in packaging that is manufactured and tested in accordance with the requirements of the ICAO Technical Instructions.

Rule 92.55 Packing requirements.

DG must be packed in accordance with the ICAO Technical Instructions. This includes using the correct type of packaging material, applying the maximum quantity limits per package, and applying any specific packing methods required by the ICAO Technical Instructions.

Rule 92.57 & 92.59 Marking and Labelling requirements.

DG must be marked and labelled in accordance with the ICAO Technical Instructions.

Rule 92.103 Offer of Dangerous Goods.

Many of the clients or passengers who use helicopters in remote areas will not be able to complete the normal requirements of certification, packaging, marking, labelling, and documentation, as required by the ICAO Technical Instructions. Helicopter operators and pilots (who are suitably trained and qualified) may undertake this function on behalf of their clients or passengers. This includes the packaging, marking, labelling, and documentation carried out either in accordance with the ICAO Technical Instructions or in accordance with this section of this AC.

Rule 92.105 Dangerous Goods Transport Document.

The Dangerous Goods Transport Document that is commonly used is the IATA Dangerous Goods Declaration (DGD). This may not be appropriate for many helicopter operations; thus, it is acceptable for a helicopter operator to create a form that is more usable and applicable to their operation, or to use a suitable document provided by a client, using the following guidelines:

- a) The document must be in two copies (electronic copies are acceptable), with one kept at base and one travelling with the DG. The document must record, in the following order:
 - i. The PSN, primary hazard class, and if applicable the division and compatibility group;
 - ii. If applicable the secondary hazard class and division;
 - iii. UN number;
 - iv. Where assigned, the packing group.
- b) The document must also record:
 - i. Name and address of shipper and consignee;
 - ii. Quantity of DG, and number and type of packages;
 - iii. If applicable the requirements from the ICAO Technical Instructions for:
 - i. Salvage packagings;
 - ii. Chemical oxygen generators;
 - iii. Self-reactive substances and organic peroxides;
 - iv. Infectious substances and controlled substances;
 - v. Firework classification reference;
 - vi. Radioactive material information;
 - vii. Specific actions or restrictions required by the operator;
 - viii. Emergency arrangements if appropriate;
 - ix. Specific approvals;
 - x. The packing instruction;

- xi. Special provisions;
 - xii. A statement indicating the shipment is acceptable for either passenger or cargo only aircraft;
 - xiii. Special handling information;
 - xiv. Overpacks;
 - xv. 'Q' values.
- c) The document may be combined with and on the same form as the NOTOC (see below), and other flight documentation such as a daily flight record or flight notification. If both dangerous and non-dangerous goods are listed in one document, the DG must be listed first.
- d) The document must bear the following declaration:
- I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked, and labelled and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.*
- e) The document must be signed and dated by the shipper.

Rule 92.153 Acceptance of Dangerous Goods.

Rule 92.153(1) requires that DG can only be accepted for carriage by air when offered with two copies of the DG transport document. The transport document requirements are listed above. Rule 92.153(2) requires that the DG have been inspected IAW Rule 92.163 and marked and labelled in accordance with Rules 92.57 and 92.59.

Rule 92.155 Acceptance check.

An operator may elect to use the IATA acceptance checklists or create their own checklist for the acceptance of DG. As a minimum the acceptance checklist must include a review of the transport document for accuracy and completeness and an inspection of the DG package(s) for marking, labelling, and condition. An electronic form is acceptable.

Rule 92.157 Aircraft loading restrictions.

DG may not be carried in a helicopter cabin occupied by passengers or on the flight deck except that:

- a) A passenger or crew member may carry DG in checked or carry-on baggage, or on their person, if permitted by the ICAO Technical Instructions (see section 6 of this AC);
- b) A passenger may carry DG for their own use for recreational purposes (see section 5 of this AC);
- c) Radioactive material if it is an excepted package under the ICAO Technical Instructions;
- d) DG of the following classes and divisions:
 - i. Class 1, Division 1.4(S), explosives of compatibility group S
 - ii. Class 2, Division 2.2, non-flammable, non-toxic gas

- iii. Class 3 flammable liquids, packing group III
- iv. Class 4, Division 4.1, flammable solids packing group III
- v. Class 5, division 5.1, oxidising substances, packing group III
- vi. Class 6, division 6.1, poisonous substances, packing group III
- vii. Class 7, radioactive material, loaded in accordance with separation requirements
- viii. Class 8, packing group III
- ix. Class 9 miscellaneous goods.

If DG does not fit into these categories, a helicopter operator must carry the DG in a separate baggage or cargo compartment, or an external cargo pod.

Rule 92.159 Incompatible dangerous goods, and Rule 92.161 Separation, segregation, and security.

All DG must be protected from damage when being loaded and be secured to prevent any movement in flight which might cause the orientation of packages to change or cause any damage to the package. While it may not be possible to apply all the loading considerations from the ICAO Technical Instructions, helicopter operators should pay attention to:

- a) Loading packages containing poisons or infectious substances such that, in the event of a leak, spillage, or rupture of the package, the contents cannot contact any passenger or crew member;
- b) Loading radioactive material separate from any persons, live animals, and undeveloped film.

The segregation tables included in the ICAO Technical Instructions and IATA DGR provide guidance on segregation. For ease of reference the following segregation requirements have been extracted from the tables:

- a) Class 1 DG (apart from 1.4(s)) must be segregated from all other DG.
- b) Class 3 DG must be segregated from class 5.1.
- c) Class 4.2 DG must be segregated from class 5.1.
- d) Class 4.3 DG must be segregated from class 8.
- e) Class 9 DG (lithium batteries) must be segregated from classes 1, 2.1, 3, 4.1, and 5.1.

Division 1.4S, and classes 6, 7, and 9 (apart from lithium batteries) do not have segregation requirements.

Rule 92.173 Information to pilot-in-command.

The information to the pilot-in-command required by the ICAO Technical Instructions is normally in the form of a written Notice-to-Captain (NOTOC). It is acceptable to combine the NOTOC with the transport document or other flight documentation such as an operational flight plan. Regardless of the format, the information must be readily available to the pilot in flight and include the information regarding the DG from the transport document.

It is also necessary that the pilot has immediate access to the emergency response information contained in ICAO Doc 9481 *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods*, or any other appropriate emergency response document. For ease of access the applicable table of emergency response codes is attached as Appendix C.

9. Carriage of DG by Underslung Load

Part 133

Part 133 allows DG to be carried as an underslung load beneath a helicopter without complying with Part 92. However, there are several conditions that must be applied in order to comply with the rule. The rule is summarised below, followed by an explanation of the key requirements.

Rule 133.65 DG.

Under rule 133.65(a), Class 1 DG may be carried as an underslung load if:

- 1) The carriage is approved by a certified handler⁵; and
- 2) Safety and emergency procedures are established; and
- 3) The DG is:
 - i. In a proper condition for carriage by air; and
 - ii. Stowed and secured for safe carriage; and
- 4) The operation is performed clear of any congested area of a city, town, or settlement.

Under rule 133.65(b), Class 2 to 9 DG may be carried as an underslung load if:

- 1) The carriage of the DG is not forbidden by the ICAO Technical Instructions;
- 2) Safety and emergency procedures are established; and
- 3) Each item of DG is identified; and
- 4) The PIC is informed of the hazardous nature of the DG; and
- 5) The DG is:
 - i. In a proper condition for carriage by air; and
 - ii. Segregated if they are likely to react dangerously together; and
 - iii. Stowed, secured, and if necessary packed, to prevent leakage or damage in flight.

A certificated operator who intends to make use of this provision should include in their operations manual or exposition appropriate procedures to address the potential safety implications of carrying DG as an underslung load. Safety and emergency procedures be written down and available to the PIC at all times. A certificated operator should use their SMS to conduct a risk analysis, and create appropriate operating procedures based on that risk analysis.

⁵ Certified Handler has the same meaning and intent as the Approved Handler referred to in Part 92 and Part 133. Introduction of the Health and Safety at Work (Hazardous Substances) Regulations 2017 replaced the term Approved with Certified.

A non-certificated operator who uses this provision should also conduct a safety risk assessment and apply appropriate safety measures.

Rule 133.65(a)(i) Certified handler.

A certified handler must approve the carriage of Class 1 DG by underslung load. This approval should be in writing and a copy of this approval should be included with the flight documentation.

Rule 133.65(b)(1) Forbidden DG.

DG that is forbidden to be carried by air in the ICAO Technical Instruction is still forbidden to be carried by underslung load. This includes items or substances that are forbidden under any circumstances and items or substances that are normally forbidden but may be carried under an approval issued by CAA. If such items or substances need to be carried, then the approval of CAA must be obtained prior to the operation.

Rule 133.65(a)(2) & (b)(2) Safety and emergency procedures for the carriage of DG by underslung load.

Safety and emergency procedures for the carriage of DG by underslung load should be contained in the exposition or operating procedures. Consideration must be given to the possibility of static build-up and the reaction that this may create with the DG.

Rule 133.65(b)(3) Identification of DG.

Each item of DG should be clearly identified, and the appropriate DG marks and labels should be visible to all personnel involved in the operation.

Rule 133.65(b)(4) Notification to pilot.

The pilot must be informed that they are carrying DG as part of their underslung load and must be notified of the hazardous nature of the DG.

Rule 133.65(b)(5) Condition, segregation, and security.

The DG must be:

- i. In proper condition to be protected from the effects of wind and weather, and protected from any stress created by cargo nets, strops or other lifting equipment. It must be contained in a net or other cargo device, or attached to the cargo sling, such that any movement is prevented and there is no possibility of it becoming insecure or falling from the aircraft. Liquids and any other items that are marked with 'this-way-up' handling labels must be carried upright, including engines or equipment containing fuel and spillable batteries. If DG is marked with protect-from-heat or keep-away-from-sunlight labels, or other handling labels, these must be adhered to.
- ii. Segregated if they are likely to react dangerously together, using the segregation table at Appendix B.
- iii. Secured so that there is no possibility of leakage or damage occurring during flight. Damaged or leaking packages may not be carried.

Appendix A: List of Commonly Carried Items of Dangerous Goods


There are several items of DG that are commonly carried, that cannot be carried under the provisions for passengers and crew, rule 92.11, or other exceptions, and that therefore need to be carried as DG cargo. This appendix is designed to be a quick reference guide to those items.

The information in this section is taken from the ICAO Technical Instructions and IATA DGR and is a summary of the relevant information for each item. It is not a complete reference, and if more information is required for a particular item or package, reference to the ICAO Technical Instructions or IATA DGR may be required. The intention of this appendix is to provide enough information for use in situations where easy access to the ICAO Technical Instructions or IATA DGR is not possible, such as remote helicopter operations.


The packaging options that are listed for each item are the common types of packaging used in New Zealand. For most DG there are other packaging options available, which can be found in the ICAO Technical Instructions or IATA DGR.

Lithium batteries are not included in this list. Any operator who intends to carry lithium batteries as cargo, and any client who wishes to ship lithium batteries as cargo, needs to refer to the latest edition of the ICAO Technical Instructions or IATA DGR to determine the appropriate carriage requirements and limitations. In some cases, the carriage of lithium batteries up to specified capacity limits may be undertaken using the provisions for carriage of DG by passengers and crew in accordance with section 7 of this AC.

1080

UN no.				2629		<div><p>WARNING 1080 POISON BAITS LAID HERE</p><p>DOMESTIC DOGS, PETS & ANIMALS MAY BE AFFECTED IF THEY EAT BAITS OR DEAD ANIMALS PROTECT BY RESTRAINING OR MUZZLING</p><p>BAITS LAID FOR: FOXES / WILD DOGS / FERAL PIGS</p><p>BAITS LAID ON</p><p>BAITS MAY BE PRESENT FROM THIS DATE</p><p>CONTACT PHONE:</p></div>			
PSN				Sodium fluoroacetate					
Class/Division (Subsidiary Hazard)				6.1					
Hazard label(s)				Toxic					
Notes: Depending on the concentration level of sodium fluoroacetate the substance may be classified as UN 2902 Pesticide, liquid, toxic, n.o.s									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
I	E5	Forbidden		666	5 kg	673	50 kg		6L
Packing Instructions:									
<ul style="list-style-type: none">PI 666:<ul style="list-style-type: none">Single packaging not permitted. Maximum quantity per inner packaging: glass 0.5 kg, metal and plastic 1.0 kg.Permitted outer packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2Plastic drums 1H1, 1H2Wooden boxes 4C1, 4C2Plywood boxes 4DFibreboard boxes 4GPI 673:<ul style="list-style-type: none">Single and combination packagings are permitted.Fibre, fibreboard, wood, and plastic single packagings must be fitted with a suitable liner.If combination packagings are used:<ul style="list-style-type: none">Maximum quantity per inner packaging: fibre, glass, paper bag, plastic bag 1.0 kg, metal and plastic 2.5kgPermitted outer packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2Plastic drums 1H1, 1H2Wooden boxes 4C1, 4C2Plywood boxes 4DFibreboard boxes 4GAcceptable single packaging includes:<ul style="list-style-type: none">Steel drums 1A1, 1A2Plastic drums 1H1, 1H2Steel jerry cans 3A1, 3A2Aluminium jerry cans 3B1, 3B2Plastic jerry cans 3H1, 3H2									


Batteries

UN no.		2800							
PSN		Batteries, wet, non spillable							
Class/Division (Subsidiary Hazard)		8							
Hazard label(s)		Corrosive							
Notes:									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
-	E0	Forbidden		872	No limit	872	No limit	A48 A67 A164 A183	8L
Packing Instruction 872: <ul style="list-style-type: none">Batteries must be securely packed in strong outer packagings.If metal packagings are used, they must be corrosion resistant or with protection against corrosion. Special Provisions: <ul style="list-style-type: none">A48: Packaging tests are not considered necessary.A67: Describes vibration and pressure testing requirements to categorise a battery as non-spillable.A164: Battery must be prepared for transport to prevent short circuits and unintentional activation.A183: Waste batteries and batteries being shipped for recycling or disposal are forbidden from air transport unless approved by CAA.									


Notes:

- For UN 3293 Batteries containing sodium and UN 3028 Batteries containing potassium hydroxide, solid, refer to separate entries in the ICAO Technical Instructions.
- Batteries, dry, are not restricted (this applies to batteries not otherwise listed in the list of DG). These are sealed, non-vented batteries of the type used in flashlights or for the operation of small apparatus. They contain zinc salts and other solids or may be of the nickel-cadmium type or other combinations or metals. Such batteries must be packed in inner packagings to prevent unintentional activation, short circuits, and movement which could lead to short circuits. Examples are alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries.


Batteries


UN no.		2794 2795							
PSN		Batteries, wet, filled with acid Batteries, wet, filled with alkali							
Class/Division (Subsidiary Hazard)		8							
Hazard label(s)		Corrosive							
Notes:									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
-	E0	Forbidden		870	30 kg	870	No limit	A51 A164 A183 A802	8L
Packing Instruction 870: <ul style="list-style-type: none">Substances must be compatible with their packagings.If metal packagings are used, they must be corrosion resistant or with protection against corrosion.Batteries must be packed in strong outer packaging, approved types include:<ul style="list-style-type: none">Steel box 4A,Aluminium box 4B,Plywood box 4D,Reconstituted wood box 4F,Fibreboard box 4G.Batteries must be securely cushioned in the package.Packaging must incorporate an acid/alkali-proof liner of sufficient strength and adequately sealed.Fill opening must remain upwards, be incapable of short circuiting, with orientation labels on the outside of the package.									
Special Provisions: <ul style="list-style-type: none">A51: Aircraft batteries may be carried on passenger aircraft up to 100kg per package.A164: Battery must be prepared for transport to prevent short circuits and unintentional activation.A183: Waste batteries and batteries being shipped for recycling or disposal are forbidden from air transport unless approved by CAA.A802: Packaging must meet packing group II performance standards.									

Diesel/Kerosene/Jet Fuel


UN no.		1202 (Diesel) 1223 (Kerosene) 1863 (Jet Fuel)							
PSN		Diesel fuel Kerosene Fuel, aviation, turbine engine							
Class/Division (Subsidiary Hazard)		3							
Hazard label(s)		Flammable liquid							
Notes: <ul style="list-style-type: none">Sufficient ullage (outage) must be left to allow for expansion during transport (do not fill to maximum capacity).Must use packagings designed for carrying fuel.Jerry cans or other plastic containers must not be more than 5 years old.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
III	E1	Y344	10L	355	60 L	366	220 L	A3 A324	3L
Packing Instructions: <ul style="list-style-type: none">PI Y344:<ul style="list-style-type: none">Single packagings are not permitted.Limited quantity packaging does not need to meet marking and testing requirements but must be well constructed of suitable material and withstand a 1.2 m drop test.Maximum net quantity per inner packaging: glass 2.5 L, metal and plastic 5 L.355:<ul style="list-style-type: none">Combination and single packagings are permitted.If combination packaging is used:<ul style="list-style-type: none">Maximum quantity per inner packaging: glass 2.5 L, metal and plastic 10 L.Acceptable outer packaging includes:<ul style="list-style-type: none">Wooden box 4C1, 4C2Plywood box 4DReconstituted wood box 4FFibreboard box 4GPlastic box 4H1, 4H2If single packaging is used acceptable packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2Steel jerry cans 3A1, 3A2Aluminium jerry cans 3B1, 3B2Plastic jerry cans 3H1, 3H2PI 366:<ul style="list-style-type: none">As for PI 355 above, except maximum quantity for inner packaging: glass 5.0 L, metal 25 L, plastic 10 L.									
Special Provisions: <ul style="list-style-type: none">A3: applies to fuel that is tested and proven to not have properties covered by this category.A324: applies to carriage of symbolic flames.									

Diving cylinder


UN no.		See notes below							
PSN									
Class/Division (Subsidiary Hazard)		2.2							
Hazard label(s)		Non-flammable gas							
Notes: May be filled with a number of gases including: <ul style="list-style-type: none">• UN 1002 Air, compressed• UN 1006 Argon, compressed• UN 1046 Helium, compressed• UN 1066 Nitrogen, compressed• UN 1956 Compressed gas, n.o.s UN1956 (gases such as normoxic and hypoxic Heliox and Trimix)									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
	E1	Forbidden		200	75 kg	200	150 kg	A69 A202 A302	2L
Packing Instruction 200: <ul style="list-style-type: none">• Cylinders must be UN marked and certified, or approved by CAA.• Cylinders must be within their prescribed test period.• Valves must be suitably protected or must be designed and constructed such that they are able to withstand damage without leakage.• Cylinders must not be filled to more than two-thirds of the test pressure of the cylinder.• Filling of cylinders must be carried out by qualified staff using appropriate equipment and procedures, including:<ul style="list-style-type: none">• Conformity of the cylinders with ICAO Technical Instructions;• Compatibility with contents;• Absence of damage;• Compliance with the degree or pressure of filling;• Marks and identification									
Special Provisions: <ul style="list-style-type: none">• A69: Applies to articles containing small quantities of inert gases• A202: Applies to radiation detectors• A302: Applies to cylinders used for providing life support to aquatic animals during transport									

UN no.		See notes below							
PSN									
Class/Division (Subsidiary Hazard)		2.2 (5.1)							
Hazard label(s)		Non-flammable gas Oxidiser							
Notes: Diving tanks may be filled with several gases including: <ul style="list-style-type: none">UN1072 Oxygen, compressedUN3156 Compressed gas, oxidising, n.o.s. (e.g. nitrox)									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
	E0	Forbidden		200	75 kg	200	150 kg	A175 A302	2X
Packing Instruction 200: <ul style="list-style-type: none">Cylinders must be UN marked and certified, or approved by CAA.Cylinders must be within their prescribed test period.Valves must be suitably protected or must be designed and constructed such that they are able to withstand damage without leakage.Cylinders must not be filled to more than two-thirds of the test pressure of the cylinder.Filling of cylinders must be carried out by qualified staff using appropriate equipment and procedures, including:<ul style="list-style-type: none">Conformity of the cylinders with ICAO Technical Instructions;Compatibility with contents;Absence of damage;Compliance with the degree or pressure of filling;Marks and identification Special Provisions: <ul style="list-style-type: none">A175: Applies to cylinders for emergency use fitted with actuating cartridgesA302: Applies to cylinders used for providing life support to aquatic animals during transport									

E-BIKES (AND OTHER BATTERY POWERED VEHICLES)

UN no.		3171							
PSN		Battery-powered vehicle							
Class/Division (Subsidiary Hazard)		9							
Hazard label(s)		Miscellaneous							
Notes: UN 3171 applies to vehicles and equipment powered by wet batteries and sodium batteries, and vehicles powered by lithium batteries, which are transported with those batteries installed. Examples of vehicles that can be carried under this provision are E-bikes, ride-on lawnmowers, wheelchairs and other mobility aids.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
-	E0	Forbidden		952	No limit	952	No limit	A67 A87 A94 A164 A214	9L:
Packing Instructions 952: <ul style="list-style-type: none">All batteries must be installed and securely fastened in the vehicle.Vehicle must be protected from inadvertent activation.Vehicle must be secured to remain upright. If this is not possible, vehicle must be secured in strong, rigid outer packaging of the type below, and restrained in the outer packaging to prevent any movement or damage during transport.Battery must be protected from damage and short circuits.All lithium batteries must be proven to meet the requirements of the UN Manual of Tests and Criteria.Any lithium batteries identified as being defective, damaged, or with the potential to cause a dangerous evolution of heat, fire, or short circuit are forbidden for transport.									
Special Provisions: <ul style="list-style-type: none">A67: Applies to the classification of wet cell batteries as spillable or non-spillable.A87: A vehicle that is not fully enclosed by packaging is not required to be marked and labelled.A94: Applies to sodium batteries only.A164: Must prevent short circuit and inadvertent activation.A214: Applies to flammable liquid and flammable gas-powered vehicles only.									

Engines and machinery

UN no.		3528							
PSN		Engine, internal combustion, flammable liquid powered; Machinery, internal combustion, flammable liquid powered.							
Class/Division (Subsidiary Hazard)		3							
Hazard label(s)		Flammable liquid							
Notes: Includes lawnmowers, outboard motors, chainsaws, etc.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
-	E0	Forbidden		378	No limit	378	No limit	A70 A87 A208	3L


Packing Instruction 378:

- Engine or machinery must be oriented to prevent leakage and secured to prevent movement.
- Fuel tanks drained and caps securely fitted.
- If item can be handled in any position other than an upright position (such as an outboard motor), complete drainage of the fuel is required. If it is not possible to handle the item in any position other than upright, then it must be drained of fuel as much as possible and any remaining fuel must not exceed one-quarter of the tank capacity.
- Batteries must be installed and securely fastened in the battery holder and protected to prevent damage and short circuits.
- If spillable batteries are installed and it is possible to handle the item in any position other than an upright position, then the batteries must be removed and packed and shipped accordingly.
- If lithium batteries are installed, they must meet all of the requirements of the ICAO Technical Instructions for the carriage of lithium batteries.


Special Provisions:

- A70: Engines and machinery may not be subject to the DG regulations if:
 - The engine has been flushed and purged of vapours and adequate measures taken to nullify the hazard; and
 - The shipper provides written or electronic documentation to state that the flushing and purging has been followed; and
 - The entire fuel system contains no liquid fuel; and
 - All fuel lines are sealed or capped or securely connected to the engine or machinery.
- A87: Articles that are not fully enclosed by packaging and can be readily identified do not need to be marked or labelled.
- A208: Clarifies the classification of engines and machinery based on fuel types.


Human Waste

UN no.				3373					
PSN				Biological substance, Category B					
Class/Division (Subsidiary Hazard)				6.2					
Hazard label(s)									
Notes: <ul style="list-style-type: none">○ A Dangerous Goods Transport Document is not required.○ The UN3373 label must be visible, and the PSN “Biological Substance, Category B’ must be marked on the outer packaging next to the label.○ An itemised list of the contents must be enclosed between the secondary and outer packaging.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
-	E0	Forbidden		650	4 kg (solid) 4 L (liquid)	650	4 kg (solid) 4 L (liquid)		11L
Packing Instruction 650: <ul style="list-style-type: none">• Packaging must include three components:<ul style="list-style-type: none">○ Primary receptacle(s)○ Secondary packaging○ Rigid outer packaging• Primary receptacle must be packed in secondary packagings so that they cannot break, be punctured, or leak. Secondary packaging must be secured in outer packaging with suitable cushioning material.• For liquid substances:<ul style="list-style-type: none">○ Primary receptacle maximum is 1 L.○ Secondary packaging must be leakproof.○ If multiple fragile primary receptacles are contained in a single secondary packaging they must be individually wrapped.○ Absorbent material or sufficient quantity to absorb entire contents must be placed between the primary receptacle and secondary packaging.○ Outer packaging must not contain more than 4 L.• For solid substances:<ul style="list-style-type: none">○ Primary receptacle must be sift-proof and must not exceed the outer packaging weight limit.○ Secondary packaging must be sift-proof.○ If multiple fragile primary receptacles are contained in a single secondary packaging they must be individually wrapped.○ Outer packaging must not contain more than 4 kg.○ If any residual liquid may be present in the primary receptacle then packaging suitable for liquids, including absorbent material, must be used.									

LPG


UN no.				1075					
PSN				Petroleum Gases, liquified					
Class/Division (Subsidiary Hazard)				2.1					
Hazard label(s)				Flammable gas					
Notes:									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
-	E0	Forbidden		Forbidden		200	150 kg	A1	10 L
Packing Instruction 200: <ul style="list-style-type: none">• Cylinders must be UN marked and certified or approved by CAA.• Cylinders must be within their prescribed test period.• Valves must be suitably protected or must be designed and constructed such that they are able to withstand damage without leakage.• Cylinders must not be filled to more than two-thirds of the test pressure of the cylinder.• Filling of cylinders must be carried out by qualified staff using appropriate equipment and procedures, including:<ul style="list-style-type: none">○ Conformity of the cylinders with ICAO Technical Instructions;○ Compatibility with contents;○ Absence of damage;○ Compliance with the degree or pressure of filling;○ Marks and identification									
Special Provisions: <ul style="list-style-type: none">• A1: May be transported on passenger aircraft with prior approval of the State.									

Paint and Paint Related Material

UN no.		1263							
PSN		Paint Paint related material							
Class/Division (Subsidiary Hazard)		3							
Hazard label(s)		Flammable liquid							
Notes: It is necessary to confirm which PG the paint falls into. Most paints in New Zealand will be PGIII, however the shipper must confirm this prior to carriage by air. Paint may also be corrosive. If this applies, reference to the ICAO TI is required to determine the carriage requirements for UN3066 or UN3470. Paint related material includes paint thinning or reducing compounds. If these are carried the confirmation of which PG applies will be necessary.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
I	E3	Forbidden		351	1 L	361	30 L	A3 A72 A192	3L
II	E2	Y341	1 L	353	5 L	364	60 L		
III	E1	Y344	10 L	355	60 L	366	220 L		
Packing Instructions:									
<ul style="list-style-type: none">PI Y341 & PI Y344:<ul style="list-style-type: none">Single packagings are not permitted.Limited quantity packaging does not need to meet marking and testing requirements but must be well constructed of suitable material and withstand a 1.2 m drop test, a stacking test, and a pressure test.Y 341 maximum net quantity per inner packaging: glass, metal and plastic 0.5 L, total net quantity per package 1 L.Y 344 maximum net quantity per inner packaging: glass 2.5 L, metal and plastic 5 L, total net quantity per package 10 L.PI 351: Single packagings not permitted. Maximum net quantity per inner packaging: glass 0.5 L, metal 1 L, total net qty per package 1 L. Acceptable outer packaging includes:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2Wooden box 4C1, 4C2Plywood box 4DReconstituted wood box 4FFibreboard box 4GPlastic box 4H1, 4H2PI 353: Single packagings not permitted. Maximum net quantity per inner packaging: glass 1.0 L, metal 5.0 L, plastic 5.0L; total net qty per package 5 L. Acceptable outer packaging as per PI 351 above.PI 355:									

- Combination and single packagings are permitted.
 - If combination packaging is used:
 - Maximum quantity per inner packaging: glass 2.5 L, metal and plastic 10 L.
 - Acceptable outer packaging as per PI 351 above.
 - If single packaging is used acceptable packagings include:
 - Steel drums 1A1, 1A2
 - Aluminium drums 1B1, 1B2
 - Plastic drums 1H1, 1H2
 - Steel jerry cans 3A1, 3A2
 - Aluminium jerry cans 3B1, 3B2
 - Plastic jerry cans 3H1, 3H2
 - PI 361:
 - Single packaging permitted, acceptable packagings as per PI 355 above.
 - Combination packaging maximum quantity for inner packaging: glass 1 L, metal 5 L, plastic not permitted, total net quantity per package 30 L. Acceptable outer packaging as per PI 351 above.
 - PI 364:
 - Single packaging permitted, acceptable packagings as per PI 355 above.
 - Combination packaging maximum quantity for inner packaging: glass 2.5 L, metal 10 L, plastic 5 L, total net quantity per package 60 L. Acceptable outer packaging as per PI 351 above.
 - PI 366:
 - Single packaging permitted, acceptable packagings as per PI 355 above.
 - Combination packaging maximum quantity for inner packaging: glass 5 L, metal 25 L, plastic 10 L, total net quantity per package 220 L. Acceptable outer packaging as per PI 351 above.
 - Packaging must be able to withstand temperature and pressure changes.
 - Closure device must be securely closed and be designed to remain closed during transport.
- Special Provisions:
- A3: only applies to fuel that is tested and proven to not have properties covered by this category.
 - A72: A substance that is specifically listed under another name must not be transported in this category.
 - A192: PSN 'Paint related material' may be used when paint and paint related material are shipped in the same consignment.

Pesticide (liquid)


UN no.					2902					
PSN					Pesticide, liquid, toxic, n.o.s					
Class/Division (Subsidiary Hazard)					6.1					
Hazard label(s)					Toxic					
Notes: see separate listing for 1080 poison.										
E	F	G	H	I	J	K	L	M	N	
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code	
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg			
		PI	Max net Qty/Pkg							
I	E5	Forbidden		652	1 L	658	30 L	A3 A4	6L	
II	E4	Y641	1 L	654	5 L	662	60 L			
III	E1	Y642	2 L	655	60 L	663	220 L			
Packing Instructions:										
<ul style="list-style-type: none">PI Y641 & PI Y642:<ul style="list-style-type: none">Single packagings are not permitted.Limited quantity packaging does not need to meet marking and testing requirements but must be well constructed of suitable material and withstand a 1.2 m drop test, a stacking test, and a pressure test.Y641 maximum net quantity per inner packaging: glass, metal and plastic 0.1 L, total net quantity per package 1 L.Y642 maximum net quantity per inner packaging: glass, metal and plastic 0.5 L, total net quantity per package 2 L.PI 652:<ul style="list-style-type: none">Single packaging not permitted. Maximum quantity per inner packaging: glass and plastic 0.5l, metal 1.0 L. Acceptable outer packaging includes:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2Wooden box 4C1, 4C2Plywood box 4DReconstituted wood box 4FFibreboard box 4GPlastic box 4H1, 4H2PI 654:<ul style="list-style-type: none">Single packaging not permitted. Maximum quantity per inner packaging: glass and plastic 1 L, metal 2.5 L. Acceptable outer packagings as per PI652 above.PI 655:<ul style="list-style-type: none">Combination and single packagings are permitted.<ul style="list-style-type: none">If combination packaging is used maximum quantity per inner packaging: glass and plastic 2.5 L, metal 5 L. Total net quantity per package 60 L. Acceptable outer packaging as per PI 652 above.If single packaging is used acceptable packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2										

- Steel jerry cans 3A1, 3A2
 - Aluminium jerry cans 3B1, 3B2
 - Plastic jerry cans 3H1, 3H2
- PI 658:
 - Combination and single packagings are permitted.
 - If combination packaging is used maximum quantity per inner packaging: glass and plastic 1 L, metal 2.5 L. Total net quantity per package 30 L. Acceptable outer packaging as per PI652 above.
 - If single packaging is used acceptable packagings as per PI 655 above.
- PI 662:
 - Combination and single packagings are permitted.
 - If combination packaging is used maximum quantity per inner packaging: glass and plastic 2.5 L, metal 5 L. Total net quantity per package 60 L. Acceptable outer packaging as per PI652 above.
 - If single packaging is used acceptable packagings as per PI655 above.
- PI 663:
 - Combination and single packagings are permitted.
 - If combination packaging is used maximum quantity per inner packaging: glass and plastic 5 L, metal 10 L. Total net quantity per package 220 L. Acceptable outer packaging as per PI652 above.
 - If single packaging is used acceptable packagings as per PI 655 above.

Special Provisions:

- A3: Clarifies the criteria for substances to be included in this class.
- A4: if the vapour inhalation toxicity is such that the substance meets PGI criteria, the substance is forbidden on passenger aircraft and cargo aircraft. If the substance has a mist inhalation toxicity is such that the substance meets PGI criteria, the substance is forbidden on passenger aircraft. It may be carried on CAO, packed in accordance with PGI instructions and package not to exceed 5 L.

Pesticide (solid)


UN no.				2588		<div></div>			
PSN				Pesticide, solid, toxic, n.o.s					
Class/Division (Subsidiary Hazard)				6.1					
Hazard label(s)				Toxic					
Notes: see separate listing for 1080 poison.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
I	E5	Forbidden		666	5 Kg	673	50 Kg	A3 A5	6L
II	E4	Y644	1 Kg	669	25 Kg	676	100 Kg		
III	E1	Y645	10 Kg	670	100 Kg	677	200 Kg		
Packing Instructions:									
<ul style="list-style-type: none">PI Y644 & PI Y645:<ul style="list-style-type: none">Single packagings are not permitted.Limited quantity packaging does not need to meet marking and testing requirements but must be well constructed of suitable material and withstand a 1.2 m drop test, a stacking test.Y644 maximum net quantity per inner packaging 0.5 kg.Y645 maximum net quantity per inner packaging 1 kg.PI 666:<ul style="list-style-type: none">Single packaging not permitted. Maximum quantity per inner packaging: glass 0.5 kg, metal and plastic 1.0 kg.Acceptable outer packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2Steel jerry cans 3A1, 3A2Aluminium jerry cans 3B1, 3B2Plastic jerry cans 3H1, 3H2Wooden box 4C1, 4C2Plywood box 4DReconstituted wood box 4FFibreboard box 4GPlastic box 4H1, 4H2PI 669:<ul style="list-style-type: none">Single packaging not permitted. Maximum quantity per inner packaging: fibre, glass, paper bag, plastic bag: 1 kg; metal, plastic: 2.5 kg.Acceptable outer packagings as per PI 666 above.PI 670:<ul style="list-style-type: none">Combination and single packagings are permitted.<ul style="list-style-type: none">If combination packaging is used maximum quantity per inner packaging: fibre, glass, paper bag, plastic bag 5 kg. Metal, plastic 10 kg. Acceptable outer packaging as per PI 666 above.If single packaging is used acceptable packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2									

- Aluminium drums 1B1, 1B2
 - Plastic drums 1H1, 1H2
 - Steel jerry cans 3A1, 3A2
 - Aluminium jerry cans 3B1, 3B2
 - Plastic jerry cans 3H1, 3H2
- PI 673:
 - Combination and single packagings are permitted.
 - If combination packaging is used maximum quantity per inner packaging: fibre, glass, paper bag, plastic bag 1 kg. Metal, plastic 2.5 kg. Acceptable outer packaging as per PI666 above.
 - If single packaging is used acceptable packagings as per PI 670 above.
- PI 676:
 - Combination and single packagings are permitted.
 - If combination packaging is used maximum quantity per inner packaging: fibre, glass, paper bag, plastic bag 2.5 kg. Metal, plastic 5 kg. Acceptable outer packaging as per PI 666 above.
 - If single packaging is used acceptable packagings as per PI 670 above.
- PI 677:
 - Combination and single packagings are permitted.
 - If combination packaging is used maximum quantity per inner packaging: fibre, glass, paper bag, plastic bag 5 kg. Metal, plastic 10 kg. Acceptable outer packaging as per PI 666 above.
 - If single packaging is used acceptable packagings as per PI 670 above.


Special Provisions:

- A3: Clarifies the criteria for substances to be included in this class.
- A5: if the inhalation toxicity is such that the substance meets PGI criteria, the substance is forbidden on passenger aircraft. CAO, package not to exceed 15 kg.


Petrol

UN no.		1203							
PSN		Petrol							
Class/Division (Subsidiary Hazard)		3							
Hazard label(s)		Flammable Liquid							
Notes: includes avgas, petrol, gasoline, motor spirit. <ul style="list-style-type: none">Sufficient ullage (outage) must be left to allow for expansion during transport (do not fill to maximum capacity).Must use packagings designed for carrying fuel.Jerry cans or other plastic containers must not be more than 5 years old.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
II	E2	Y341	1 L	353	5L	364	60 L	A100	3H
Packing Instructions: <ul style="list-style-type: none">PI Y341:<ul style="list-style-type: none">Single packagings are not permitted.Limited quantity packaging does not need to meet marking and testing requirements but must be well constructed of suitable material and withstand a 1.2 m drop test, stacking test, and pressure test.Maximum net quantity per inner packaging: glass, metal, and plastic 0.5 L.PI 353:<ul style="list-style-type: none">Single packagings are not permitted.Maximum quantity per inner packaging: glass 1 L, metal and plastic 5 L.Acceptable outer packaging includes:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2Steel jerry cans 3A1, 3A2Aluminium jerry cans 3B1, 3B2Plastic jerry cans 3H1, 3H2Wooden box 4C1, 4C2Plywood box 4DReconstituted wood box 4FFibreboard box 4GPlastic box 4H1, 4H2PI 364:<ul style="list-style-type: none">Combination and single packagings are permitted.If combination packaging is used:<ul style="list-style-type: none">Maximum quantity per inner packaging: glass 2.5 L, metal 10 L, plastic 5 L.Acceptable outer packaging as per PI353 above.If single packaging is used acceptable packagings include:<ul style="list-style-type: none">Steel drums 1A1Aluminium drums 1B1Plastic drums 1H1Steel jerry cans 3A1Aluminium jerry cans 3B1Plastic jerry cans 3H1									
Special Provisions: <ul style="list-style-type: none">A100: This entry includes gasoline, motor spirit, and petrol for use in spark-ignition engines.									


Turpentine

UN no.						1299					
PSN						Turpentine					
Class/Division (Subsidiary Hazard)						3					
Hazard label(s)						Flammable Liquid					
Notes: For mineral turpentine and white spirit see UN 1300 turpentine substitute.											
											
E	F	G	H	I	J	K	L	M	N		
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code		
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg				
		PI	Max net Qty/Pkg								
III	E1	Y344	10 L	355	60 L	366	220 L		3L		
Packing Instructions:											
<ul style="list-style-type: none">PI Y344:<ul style="list-style-type: none">Single packagings are not permitted.Limited quantity packaging does not need to meet marking and testing requirements but must be well constructed of suitable material and withstand a 1.2 m drop test, stacking test, and pressure test.Maximum net quantity per inner packaging: glass 2.5 L, metal and plastic 5 L.PI 355:<ul style="list-style-type: none">Combination and single packagings are permitted.If combination packaging is used:<ul style="list-style-type: none">Maximum quantity per inner packaging: glass 2.5 L, metal and plastic 10 L.Acceptable outer packaging includes:<ul style="list-style-type: none">Wooden box 4C1, 4C2Plywood box 4DReconstituted wood box 4FFibreboard box 4GPlastic box 4H1, 4H2If single packaging is used acceptable packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2Steel jerry cans 3A1, 3A2Aluminium jerry cans 3B1, 3B2Plastic jerry cans 3H1, 3H2PI 366:<ul style="list-style-type: none">As for PI 355 above, except maximum quantity for inner packaging: glass 5.0 L, metal 25 L, plastic 10 L.											

Turpentine Substitute

UN no.		1300							
PSN		Turpentine substitute							
Class/Division (Subsidiary Hazard)		3							
Hazard label(s)		Flammable Liquid							
Notes: Includes mineral turpentine and white spirit.									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
II	E2	Y341	1 L	353	5 L	364	60 L	A3	3L
III	E1	Y344	10 L	355	60 L	366	220 L		
Packing Instructions: <ul style="list-style-type: none">• Y341, 353, and 364 see entry for UN 1203 Petrol.• Y344, 355, and 366 see entry for UN 1299 Turpentine. Special provisions: <ul style="list-style-type: none">• A3: Clarifies the criteria for substances to be included in this class.									

Weed killer

UN no.		3082							
PSN		Environmentally hazardous substance, liquid, n.o.s, triclophyr*							
Class/Division (Subsidiary Hazard)		9							
Hazard label(s)		Miscellaneous and Environmentally Hazardous							
Notes: *PSN must include technical name of product									
E	F	G	H	I	J	K	L	M	N
PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P.	ERG Code
	EQ	Limited Qty		PI	Max net Qty/Pkg	PI	Max net Qty/Pkg		
		PI	Max net Qty/Pkg						
III	E1	Y964	30Kg G	964	450 L	964	450 L	A97 A158 A197 A215	9L
Packing Instructions:									
<ul style="list-style-type: none">PI Y964:<ul style="list-style-type: none">Single packagings are not permitted.Limited quantity packaging does not need to meet marking and testing requirements but must be well constructed of suitable material and withstand a 1.2 m drop test, a stacking test, and a pressure test.Maximum net quantity per inner packaging: 5 L.PI 964:<ul style="list-style-type: none">Combination and single packagings are permitted.If combination packaging is used:<ul style="list-style-type: none">Maximum quantity per inner packaging: glass 10 L, metal 40 L, plastic 30 L.Acceptable outer packaging includes:<ul style="list-style-type: none">Steel drums 1A1, 1A2Plastic drums 1H1, 1H2Wooden box 4C1, 4C2Plywood box 4DReconstituted wood box 4FFibreboard box 4GPlastic box 4H1, 4H2If single packaging is used acceptable packagings include:<ul style="list-style-type: none">Steel drums 1A1, 1A2Aluminium drums 1B1, 1B2Plastic drums 1H1, 1H2Steel jerry cans 3A1, 3A2Aluminium jerry cans 3B1, 3B2Plastic jerry cans 3H1, 3H2									
Special Provisions:									
<ul style="list-style-type: none">A97: Explains classification of these types of substances.A158: Must be no free liquid visible at the time the package is closed and the package is loaded.A197: Provides some exceptions if carried in packagings containing a net quantity of 5 L or less.A215: Clarifies that the PSN includes the technical name of the product.									

Appendix B: Segregation Requirements

Packages containing DG which might react dangerously with one another must not be stowed on an aircraft next to each other or in a position that would allow interaction between them in the event of leakage. The segregation in the following table must be followed to maintain acceptable segregation. The segregation requirements apply whether the hazard is the primary or a subsidiary hazard.

Table B-1: Segregation of Dangerous Goods

Hazard Label	1 excl. 1.4S	2.1	2.2,2.3	3	4.1	4.2	4.3	5.1	5.2	8	9 see note 2
1 excl. 1.4S	Note 1	X	X	X	X	X	X	X	X	X	X
2.1	X	-	-	-	-	-	-	-	-	-	X
2.2,2.3	X	-	-	-	-	-	-	-	-	-	-
3	X	-	-	-	-	-	-	X	-	-	X
4.1	X	-	-	-	-	-	-	-	-	-	X
4.2	X	-	-	-	-	-	-	X	-	-	-
4.3	X	-	-	-	-	-	-	-	-	X	-
5.1	X	-	-	X	-	X	-	-	-	-	X
5.2	X	-	-	-	-	-	-	-	-	-	-
8	X	-	-	-	-	-	X	-	-	-	-
9 see note 2	X	X	-	X	X	-	-	X	-	-	-

Notes:

1. For segregation requirements of different divisions of explosives refer to the ICAO Technical Instructions or IATA DGR.
2. For segregation of lithium ion and lithium metal batteries refer to the ICAO Technical Instructions or IATA DGR. In general lithium ion and lithium metal batteries must not be stowed next to or close to packages containing Class 1 (other than 1.4(s)), Division 2.1, Class 3, Division 4.1, or Division 5.1 DG.

Appendix C: Aircraft Emergency Response Drills

Drill #	Inherent risk	Risk to aircraft	Risk to occupants	Spill or leak procedure	Firefighting procedure	Additional considerations
1	Explosion may cause structural failure	Fire and/or explosion	As indicated by the drill letter(s)	Use 100% oxygen, no smoking	All agents according to availability; use standard firefighting procedure	Possible abrupt loss of pressurisation
2	Gas, non-flammable, pressure may create hazard in fire	Minimal	As indicated by the drill letter(s)	Use 100% oxygen; establish and maintain maximum ventilation for 'A', 'I', or 'P' drill letter	All agents according to availability; use standard firefighting procedure	Possible abrupt loss of pressurisation
3	Flammable liquid or solid	Fire and/or explosion	Smoke, fumes, and heat, and as indicated by the drill letter	Use 100% oxygen; establish and maintain maximum ventilation; no smoking; minimum electrics.	All agents according to availability; no water on 'W' drill letter.	Possible abrupt loss of pressurisation
4	Spontaneously combustible or pyrophoric when exposed to air	Fire and/or explosion	Smoke, fumes, and heat, and as indicated by the drill letter	Use 100% oxygen; establish and maintain maximum ventilation	All agents according to availability; no water on 'W' drill letter.	Possible abrupt loss of pressurisation; minimum electrics if 'F' or H' drill letter
5	Oxidiser, may ignite other materials, may explode in heat of a fire	Fire and/or explosion, possible corrosion damage	Eye, nose, and throat irritation; skin damage on contact	Use 100% oxygen; establish and maintain maximum ventilation	All agents according to availability; no water on 'W' drill letter.	Possible abrupt loss of pressurisation
6	Toxic, may be fatal if inhaled, ingested, or absorbed by skin	Contamination with toxic liquid or solid	Acute toxicity, effects may be delayed	Use 100% oxygen; establish and maintain maximum ventilation; do not touch without gloves	All agents according to availability; no water on 'W' drill letter.	Possible abrupt loss of pressurisation; minimum electrics if 'F' or H' drill letter
7	Radiation from broken/unshielded packages	Contamination with spilled radioactive material	Exposure to radiation, and personnel contamination	Do not move packages, avoid contact	All agents according to availability	Call for a qualified person to meet the aircraft

8	Corrosive, fumes disabling if inhaled or in contact with skin	Possible corrosion damage	Eye, nose, and throat irritation; skin damage on contact	Use 100% oxygen; establish and maintain maximum ventilation; do not touch without gloves	All agents according to availability; no water on 'W' drill letter.	Possible abrupt loss of pressurisation; minimum electrics if 'F' or H' drill letter
9	No general inherent risk	As indicated by the drill letter	As indicated by the drill letter	Use 100% oxygen; establish and maintain maximum ventilation for if 'A' drill letter	All agents according to availability	None
10	Gas, flammable, high fire risk if any ignition source present	Fire and/or explosion	Smoke, fumes, and heat, and as indicated by the drill letter	Use 100% oxygen; establish and maintain maximum ventilation; no smoking; minimum electrics.	All agents according to availability	Possible abrupt loss of pressurisation
11	Infectious substances may affect humans or animals if inhaled, ingested, or absorbed through the mucous membrane or an open wound	Contamination with infectious substances	Delayed infection to humans or animals	Do not touch. Minimum re-circulation and ventilation in affected area.	All agents according to availability; no water on 'Y' drill letter.	Call for a qualified person to meet the aircraft.
12	Fire, heat, smoke, toxic and flammable vapour	Fire and/or explosion	Smoke, fumes, heat	Use 100% oxygen; establish and maintain maximum ventilation	All agents according to availability. Use water if available	Possible abrupt loss of pressurisation; consider landing immediately
Drill letter	Additional risk		Drill letter	Additional risk		
A	Anaesthetic		S	Spontaneously combustible or pyrophoric		
B	Corrosive		W	If wet gives off toxic or flammable gas		
E	Explosive		X	Oxidiser		
F	Flammable		Y	Depending on the type of infectious substance, the appropriate national authority may be required to quarantine individuals, animals, cargo, and the aircraft		
H	Highly ignitable		Z	Aircraft cargo fire suppression system may not extinguish or contain the fire; consider landing immediately		
I	Irritant/tear producing					
L	Other risk low or none					
M	Magnetic					
N	Noxious					
P	Toxic (poison)					

Appendix D: Explanation of Carriage of DG

DG can be carried under several different provisions of Part 92 and the ICAO Technical Instructions. This appendix is designed for personnel who do not have a thorough understanding of DG carriage by air. It explains some of the basic provisions and applicable requirements that apply to the carriage of DG by air. It also includes some explanations to help correct misunderstanding in certain areas. Each of the brief explanations below is only a very light synopsis of the requirements of the ICAO Technical Instructions to aid with a simple understanding: it is not a replacement for thorough and correct training, knowledge, and skill required by personnel involved in the carriage of DG by air. Table D-1 is provided to assist with understanding the options available for the carriage of DG.

Carriage of DG. DG may be carried in the following ways:

1. DG carried under the three exceptions of Part 92:
 - a. DG carried by police in carrying out their duties.
 - b. Class 1 explosives carried under the direct supervision of a certified handler.
 - c. DG carried by a passenger for their recreational use.

An explanation of these provisions is found in sections 3, 4, and 5 of this AC

2. DG carried for medical use in flight. An explanation of this provision is found in section 6 of this AC.
3. DG carried by passengers and crew in accordance with part eight of the ICAO Technical Instructions, as checked in baggage, carry-on baggage, or on their person. An explanation of these provisions is found in section 7 of this AC.
4. DG carried as cargo, which may be carried as:
 - a. **An 'excepted quantity' of DG:** i.e., a small enough quantity of DG to make it unnecessary for it to meet some ICAO Technical Instructions. Some DG may be carried in such small quantities that it does not have to meet all the provisions of the ICAO Technical Instructions. DG carried under this provision must be clearly marked with the excepted quantities package mark. There are some provisions of the ICAO Technical Instructions which are still applicable to excepted quantities. To find out whether or not a substance can be carried as an excepted quantity, participants need to check the Dangerous Goods List in the ICAO Technical Instructions, or the List of Dangerous Goods in the IATA DGR.
 - b. **A 'limited quantity' of DG:** i.e. some DG that may be carried in quantities that present a reduced hazard during transport, and as such do not have to meet the full packaging requirements of the ICAO Technical Instructions. To find out whether or not a substance can be carried as a limited quantity, participants need to check the Dangerous Goods List in the ICAO Technical Instructions, or the List of Dangerous Goods in the IATA DGR
 - c. **DG carried in passenger or cargo aircraft.** DG that can be carried on passenger aircraft may also be carried on cargo aircraft. The Dangerous Goods List in the ICAO Technical Instructions, and the List of Dangerous Goods in the IATA DGR,

prescribe the maximum quantity per package and the applicable packaging instructions that must be followed.

- d. **DG carried in cargo aircraft only.** Some DG can only be carried on cargo aircraft. The Dangerous Goods List in the ICAO Technical Instructions, and the List of Dangerous Goods in the IATA DGR, prescribe the maximum quantity per package and the applicable packaging instructions that must be followed.

The quantities of DG listed in the DG lists in the ICAO Technical Instructions and IATA DGR are per-package quantities. There is no limit to the overall quantity that may be carried on an aircraft, other than normal aircraft loading limits.

Forbidden DG. Some DG are forbidden for carriage by air under any circumstances and may not be carried at all. However, there are other items of DG that are listed as forbidden but may be carried in certain circumstances. The two possible avenues for this are:

1. **Approval.** CAA may, on application, approve certain items of DG to be carried which are normally forbidden. These items are identified in the ICAO Technical Instructions and there are specific guidelines for CAA to follow in the approval process. An example is an item that may normally be forbidden to be carried in passenger aircraft, but on application may be approved by CAA for carriage in passenger aircraft. CAA is required to abide by the information in the Supplement to the ICAO Technical Instructions which, amongst other things, states the quantities that can be approved.
2. **Exemption.** An application for exemption may be made in cases where the carriage of DG by air is not approved under Part 92 and the ICAO Technical Instructions. An exemption will only be granted in instances of extreme urgency, when other forms of transport are inappropriate, or when full compliance with the ICAO Technical Instructions is contrary to the public interest.

For approvals and exemptions, the applicant must prove that the overall level of safety for the transport of these items is equivalent to the level of safety provided by the ICAO Technical Instructions.

Hidden and mis-declared DG. DG may be deliberately or inadvertently hidden in a passenger's baggage or in general cargo. It may also be mis-declared either deliberately or inadvertently. All personnel involved in air transport need to be aware of the dangers presented by this and must take all reasonable steps to ascertain the correct nature of baggage and cargo that is presented for carriage. Education, signage, questioning, and inspection are some of the methods used to try and prevent DG being carried without the knowledge of the operator or pilot.

Shipper and Operator responsibilities. There are two main processes involved in the transport of DG by air: the shipping, and the acceptance of DG.

- It is the shipper's responsibility to ensure that the DG is correctly packaged, identified, classified, marked, labelled, and documented, and present the DG to an operator for carriage with the correct documentation.
- It is the operator's responsibility to accept the DG for carriage, which includes a physical inspection and an inspection of the documentation. The operator is then responsible for storing the DG, and the handling of the DG including loading, transport, and unloading.

The shipping function is normally done by a qualified DG shipper, and the acceptance function is done by a person qualified to accept DG for carriage by air. As such, these two personnel are the

key personnel in the process, however all personnel (pilots, cabin crew, loaders, dispatchers, etc) who are involved in the carriage of DG by air must be trained and certified for their role. The training requirements for the shipper and the acceptance person are the highest level of training and they are required to have a sound level of knowledge, skill, and experience in their role.

It is possible in a small operation, particularly in remote areas, for a person who wishes to carry DG to be unable to access the services of a qualified DG shipper. In this case, if an operator has personnel who are qualified to conduct the shipping function, they may offer this service. It may even be the same person who is carrying out both the shipping and the acceptance function. In this instance, they must be fully aware of the differentiation in roles, and the procedures required by both roles.

DG carried in operator's property. Articles and substances which would otherwise be classified as DG, but which are required to be aboard an aircraft in accordance with airworthiness requirements or operating regulations, are not subject to the provisions of the ICAO Technical Instructions. A similar provision applies to consumer goods carried for use on-board or for sale on-board, for dry ice used in food service, and for electronic devices such as PEDs. However, aircraft spares must be carried in accordance with the provision of the ICAO Technical Instructions: they must be shipped and carried as DG.

Exceptions. There are a number of general exceptions to the ICAO Technical Instructions that are applicable to various operations, including DG carried for use in flight to provide medical aid to a patient or to preserve organs intended for transplant use, and to provide veterinary aid or as a humane killer for an animal during flight. If an operator intends to use any of these provisions, they must become familiar with the exact nature of the exception and use their SMS to conduct a risk assessment of the operation including the carriage of DG. As a minimum, it is expected that an operator has listed the DG that is being carried, and considered any specific handling, segregation, and emergency procedures that are applicable.

Different DG packed in one outer packaging. It is common for clients to present smaller quantities of DG for carriage packed into one outer packaging. An outer packaging may contain more than one item of DG or other goods, however in order to be acceptable, it must meet several conditions:

1. The DG items must not react dangerously with each other or the other goods;
2. The DG must not require segregation;
3. A packaging containing infectious substances must not contain other DG except if specifically allowed in the ICAO Technical Instructions;
4. The inner packaging for each item complies with the packaging instruction for that item;
5. The outer packaging must be allowable for each of the items;
6. The packaging meets the performance test for the most restrictive item;
7. A 'Q' value calculation must show that the 'Q' value does not exceed 1.0:
 - a) 'Q' value is calculated by dividing the net quantity per package by the maximum allowable net quantity for that item and adding together then resulting fractions.
 - b) 'Q' value does not need to include dry ice, 'no-limit' items, or items that have the same UN number, packing group, physical state, and maximum net

quantity, provided they are the only DG in the package and the maximum net quantity is not exceeded.

Packing group assignment. Some classifications of DG provide options for assignment into packing groups I, II, or III rather than assignment to a specific packing group. It is the responsibility of the shipper to determine which packing group is applicable, based on the physical or chemical properties of the DG. For example, paint may be assigned to any of the three packing groups, determined by the flash point and boiling point of the paint. The packing group assignment then determines the applicable quantities and types of packaging required for that item.

Table D-1: Options for Carriage of Dangerous Goods

Options for Carriage of Dangerous Goods								
Operator Policy	Will-not carry operator (operator elects not to carry DG as cargo)				Will-carry operator (operator elects to carry DG as cargo)			
Options	1	2	3	4	5	6	7	8
	Non-DG	Part 92.11 Exceptions	DG Carried under exceptions contained in the Technical Instructions (TI)	DG Carried by Passengers and Crew	Pax and cargo a/c Excepted Quantity	Pax and cargo a/c Limited Quantity	Pax and cargo aircraft	Cargo Aircraft only
Quantity	N/A	As per operator exposition ⁶	As per operator exposition ⁷	As per table contained in TI and DGR	As per table contained in TI and DGR 2.6	Max Net Qty/Pkg defined in TI and DGR 4	Max Net Qty/Pkg defined in TI and DGR 4	Max Net Qty/Pkg defined in TI and DGR 4
Dangerous Goods Transport Document	Dangerous Goods Transport Document is not required	Dangerous Goods Transport Document is not required. List of DG carried should be included in flight documentation.		Dangerous Goods Transport Document is not required		Dangerous Goods Transport Document is required		
Notes	Signed statement that consignment is not DG is required	Operator should have SOP and conduct risk assessment	Operator should have SOP and conduct risk assessment. Exceptions include: a) Medical b) Veterinary c) SAR d) Avalanche control ⁸ e) Agriculture ⁹ f) Aircraft fuel ¹⁰	Must be carried with the passenger or crew member on the same flight as: a) On-person b) Carry-on bags c) Checked baggage	DG clearly marked with 'E' label	DG clearly marked with 'Y' label. Ltd Qty allows for relief from the packaging material requirements but other requirements still apply.		
Training	DG Awareness training	DG awareness training is not acceptable. DG training must be carried out for all personnel involved in the offer, acceptance, and handling of DG that is applicable to the role of the individual person, and the DG that they deal with.						

⁶ Maximum quantities should follow the Technical Instructions.

⁷ Maximum quantities should follow the Technical Instructions.

⁸ DG carried for dropping in connection with avalanche control during that flight, not for transit flights.

⁹ DG carried for dropping in connection with agricultural activities during that flight, not for transit flights.

¹⁰ Fuel carried in the aircraft fuel tanks for use in that flight. Does not include fuel carried in jerry cans for use on subsequent flights which must be shipped and carried as DG.